

Fig. 1A - Vertical sound line

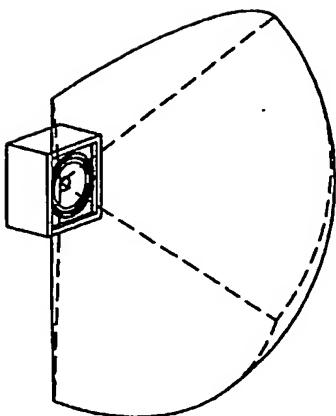


Fig. 1B - Spherical sound line

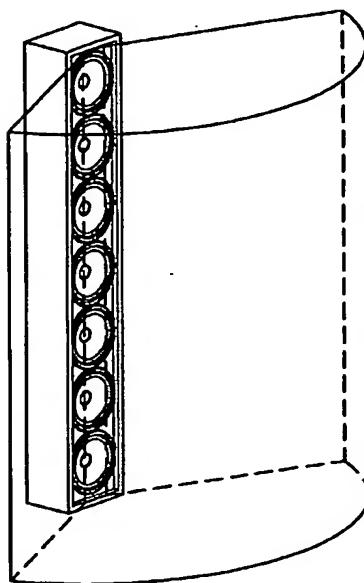


Fig. 1C - Cylindrical sound line

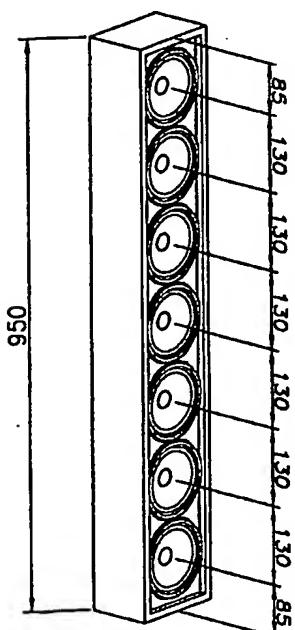


Fig. 2A – Dimensional example of vertical sound line

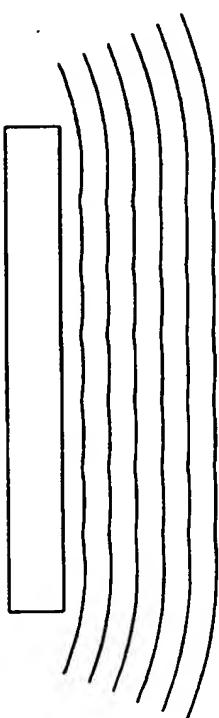


Fig. 2B – 1000 Hz

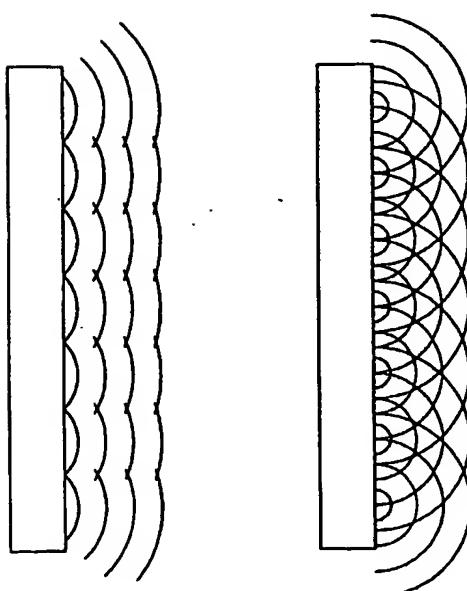


Fig. 2C – 2000 Hz

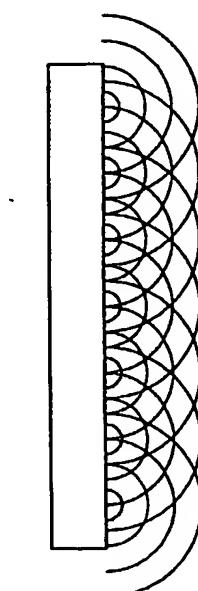


Fig. 2D - Over 2000 Hz

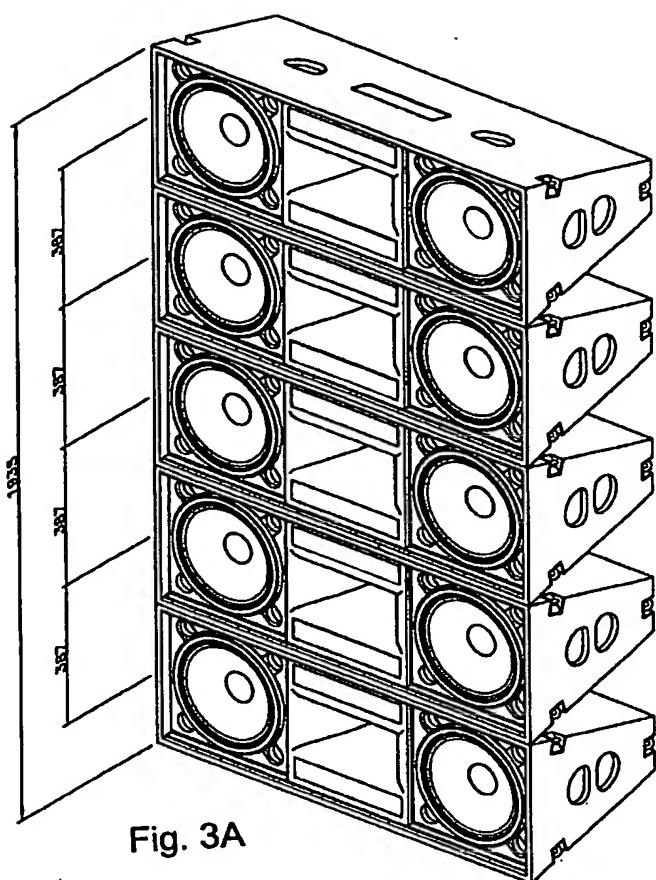


Fig. 3A

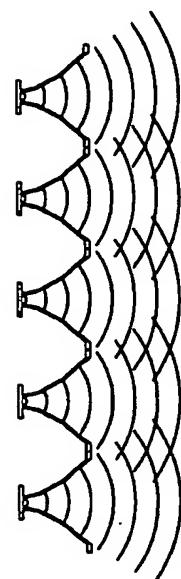


Fig. 3B

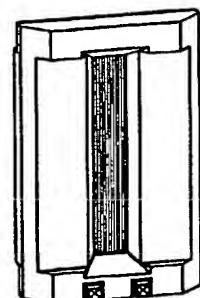


Fig. 4B

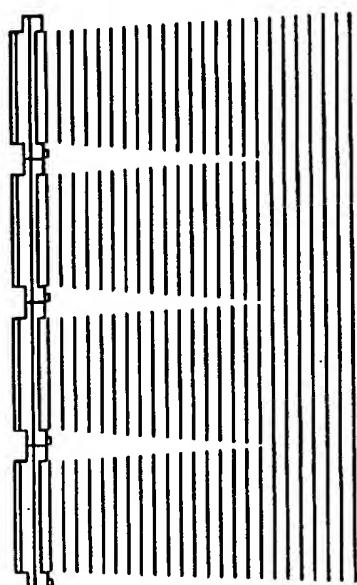


Fig. 4A

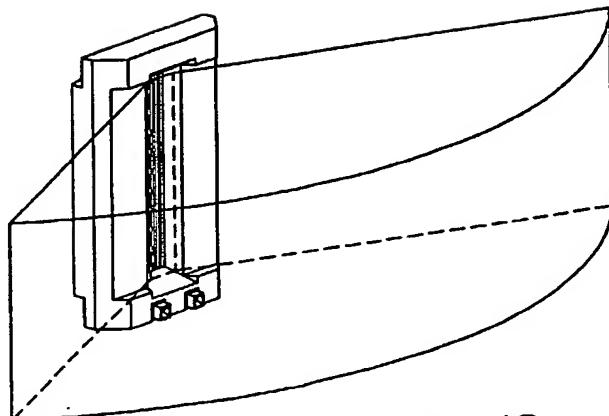


Fig. 4C

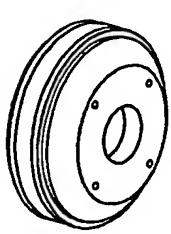


Fig. 5A

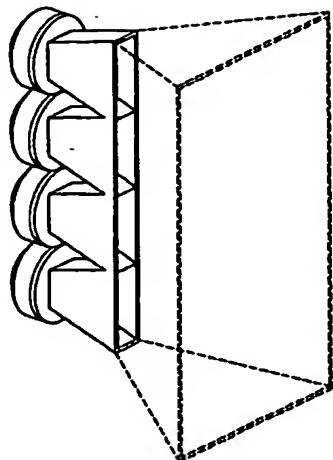


Fig. 5B

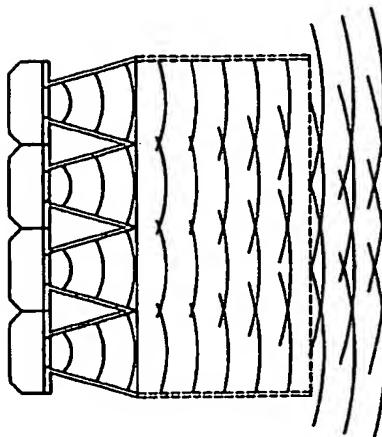


Fig. 5C

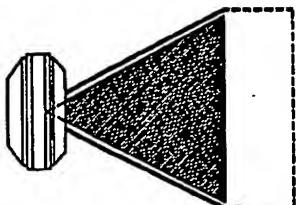
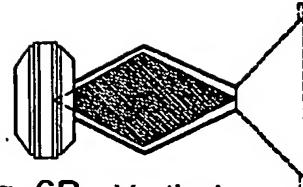
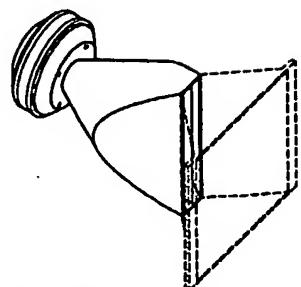
Fig. 6A -Horizontal
cross sectionFig. 6B - Vertical
cross section

Fig. 6C

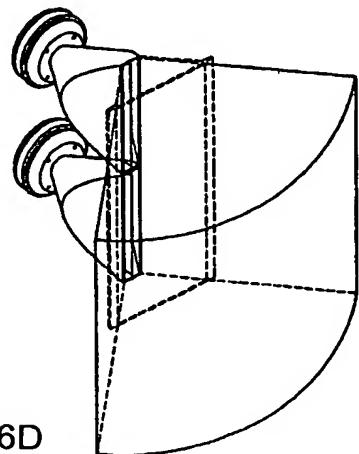


Fig. 6D

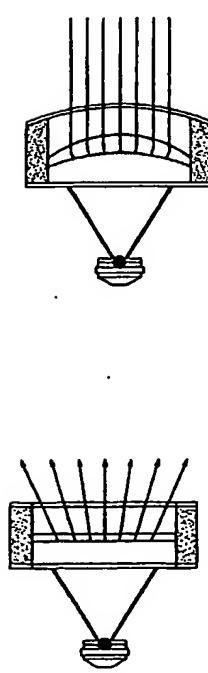


Fig. 7A - Reflection pattern on a flat surface - from above and cross section

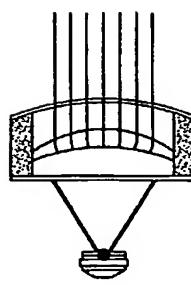


Fig. 7B - Reflection pattern on a parabolic surface before the first throat plane - from above and cross section

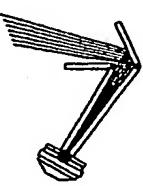


Fig. 7C - Reflection pattern on a parabolic surface after the second throat plane - from above and cross section

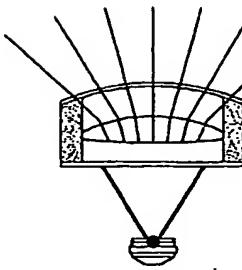


Fig. 7D - Reflection pattern on a hyperbolic surface - from above and cross section



Fig. 7E - Reflection pattern on an elliptical surface - from above and cross section

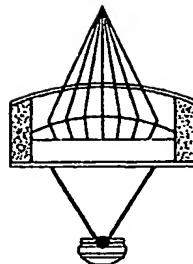


Fig. 8A - Wave guide pattern with real (above) and theoretical (below) parabolic reflection surface

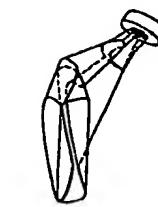


Fig. 8B - Wave guide pattern with real (above) and theoretical (below) hyperbolic reflection surface

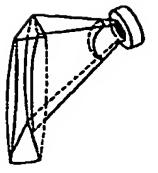
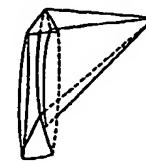
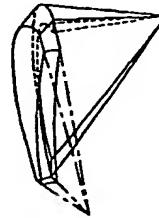
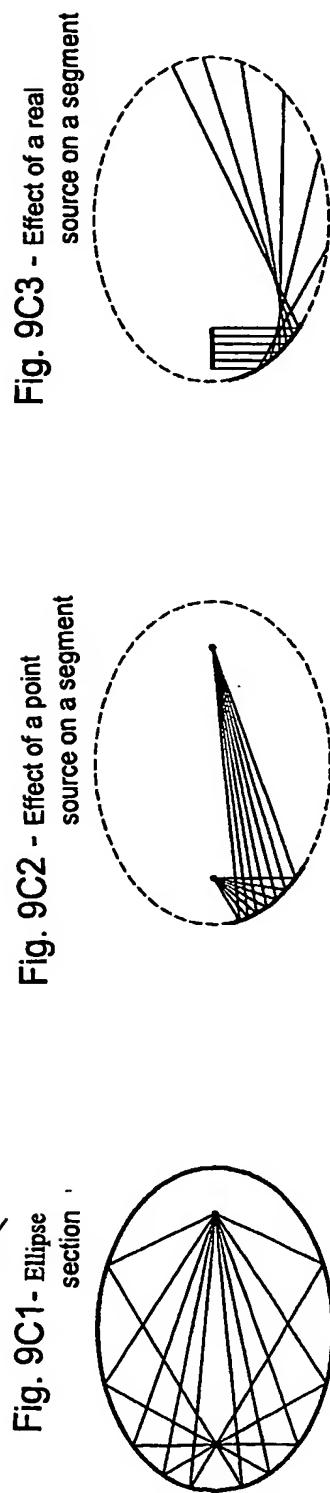
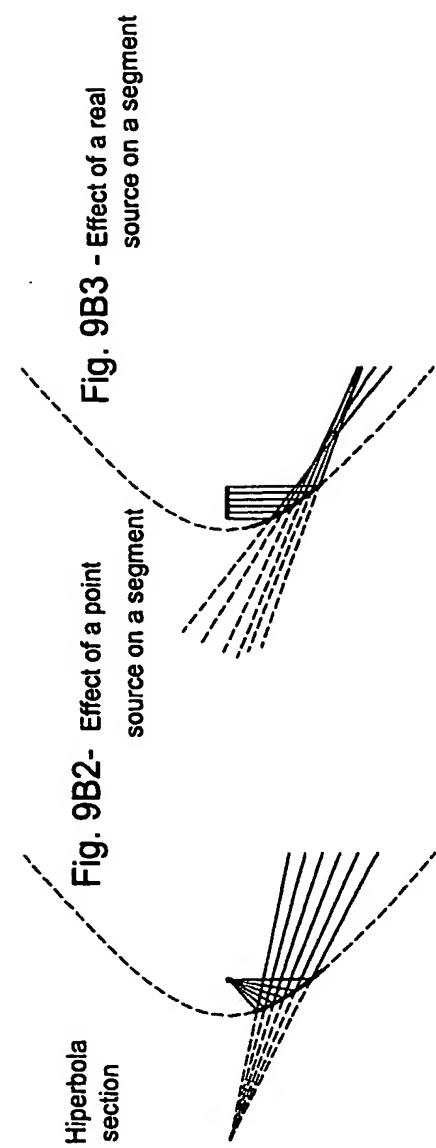
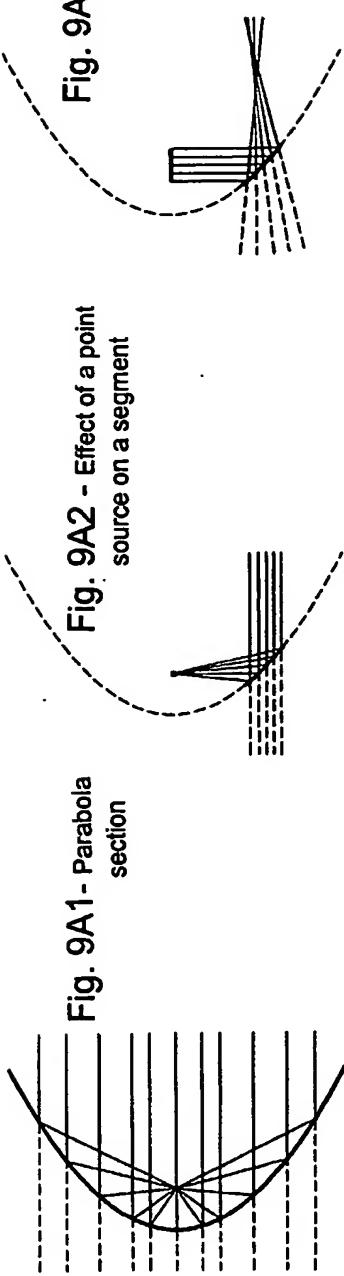
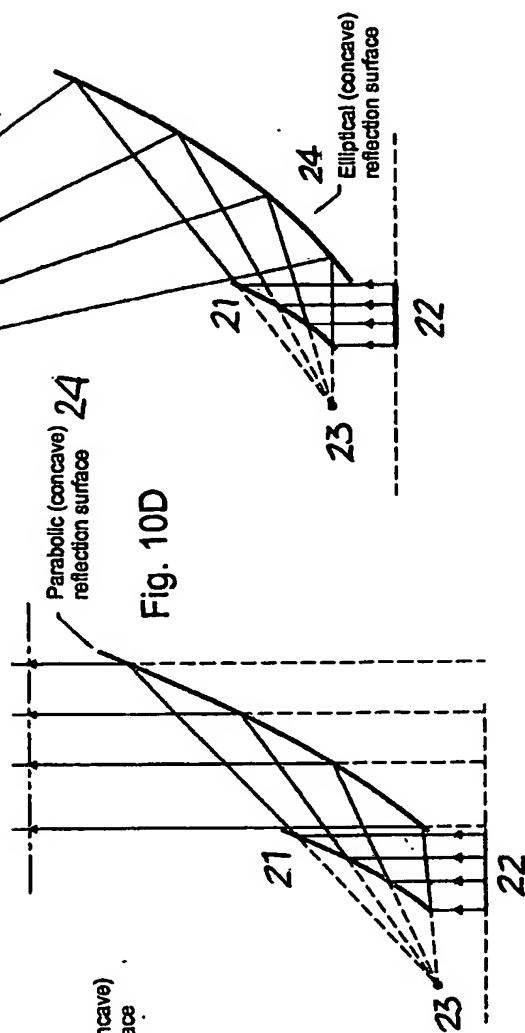
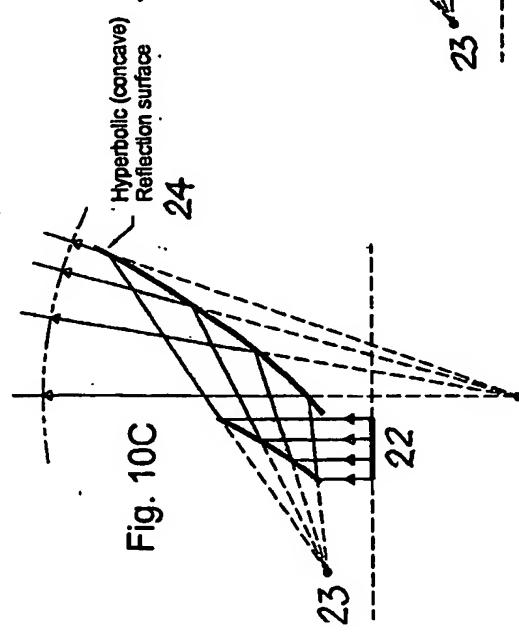
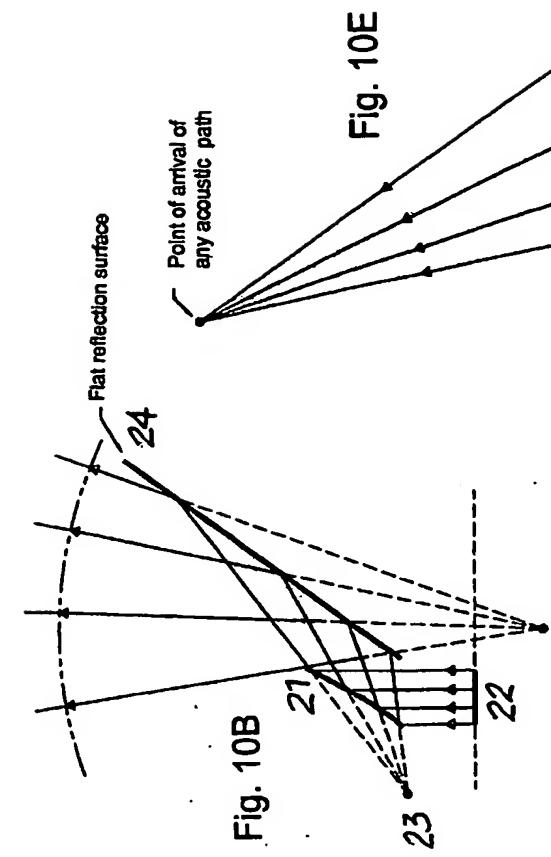
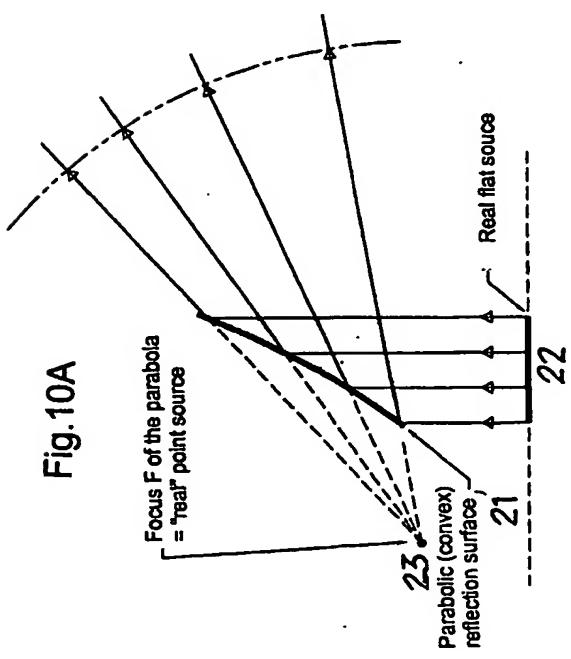


Fig. 8C - Wave guide pattern with real (above) and theoretical (below) elliptical reflection surface







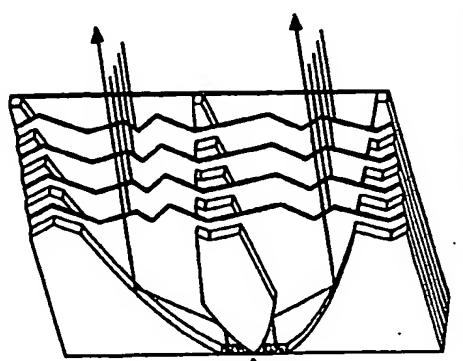


Fig. 11C

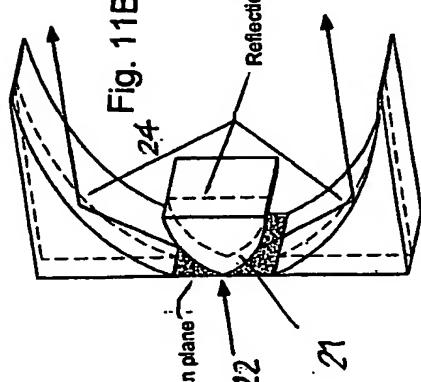


Fig. 11B

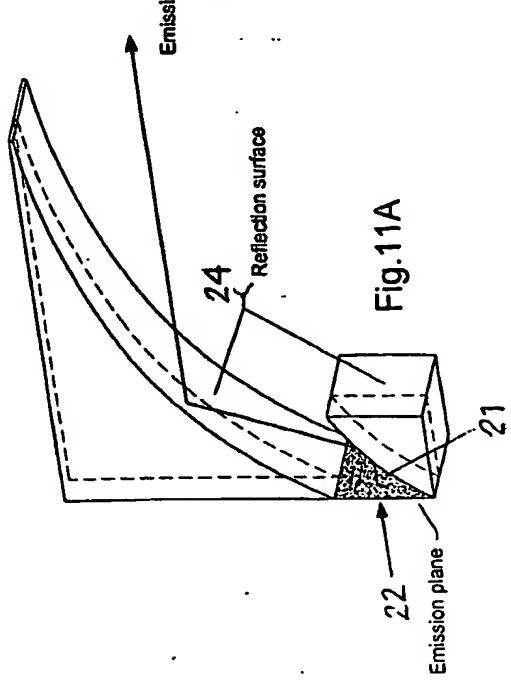


Fig. 11A

Partition for eliminating
inside reflectionsParabolic reflection
surface 25

25

Flat reflection 24
surface

Fig. 12

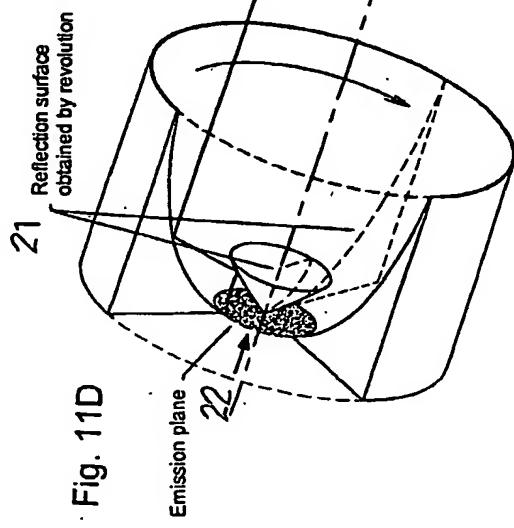
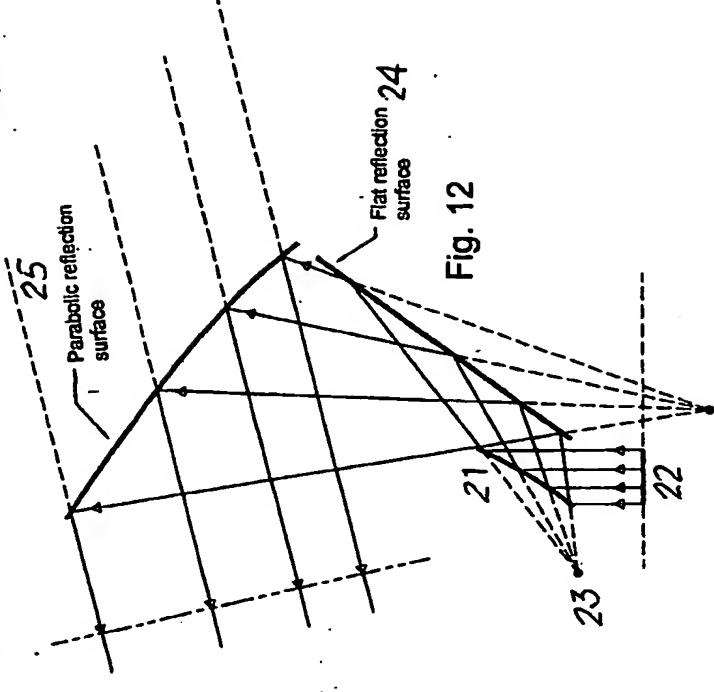
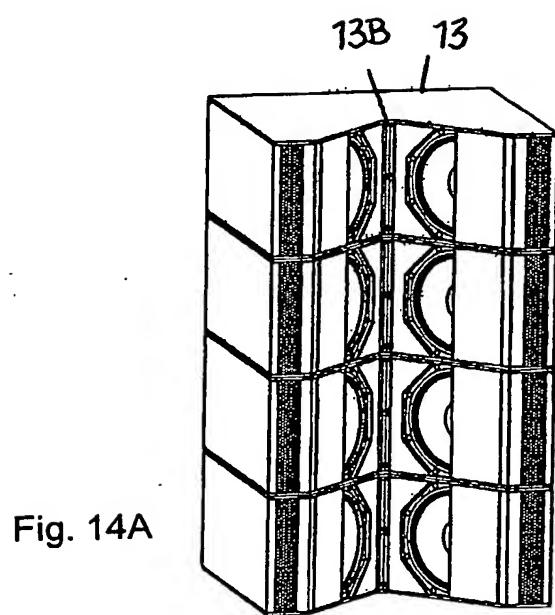
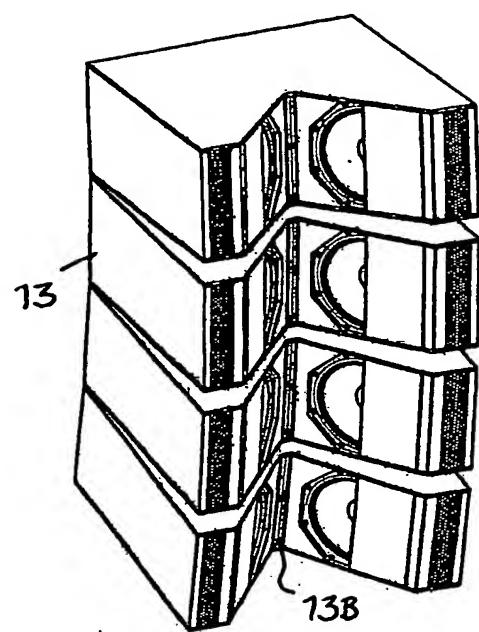
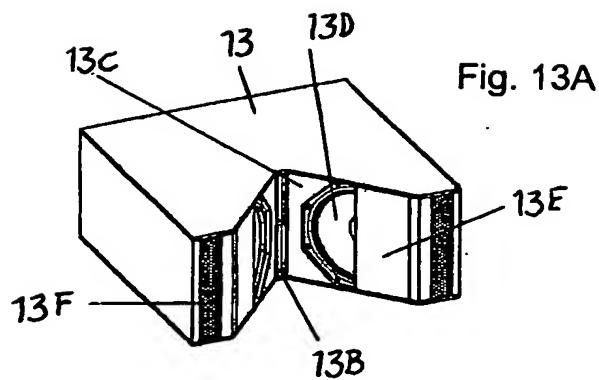
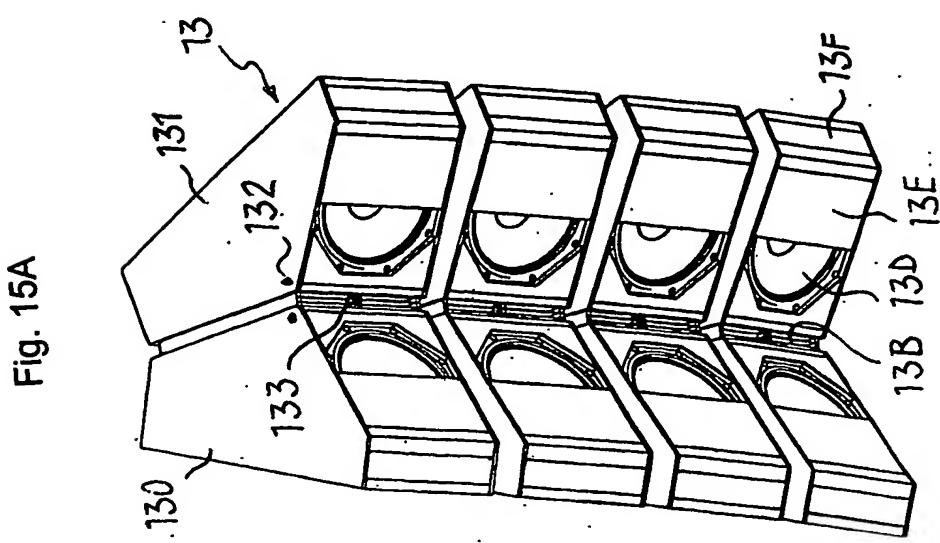
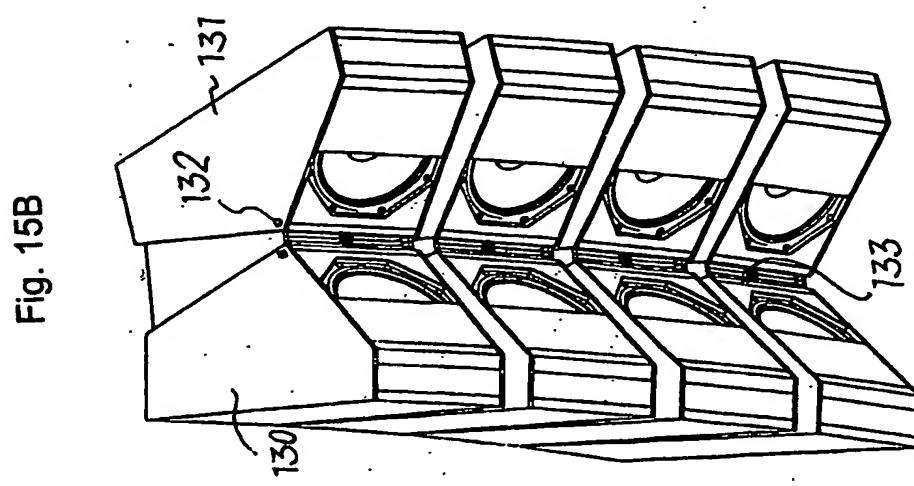
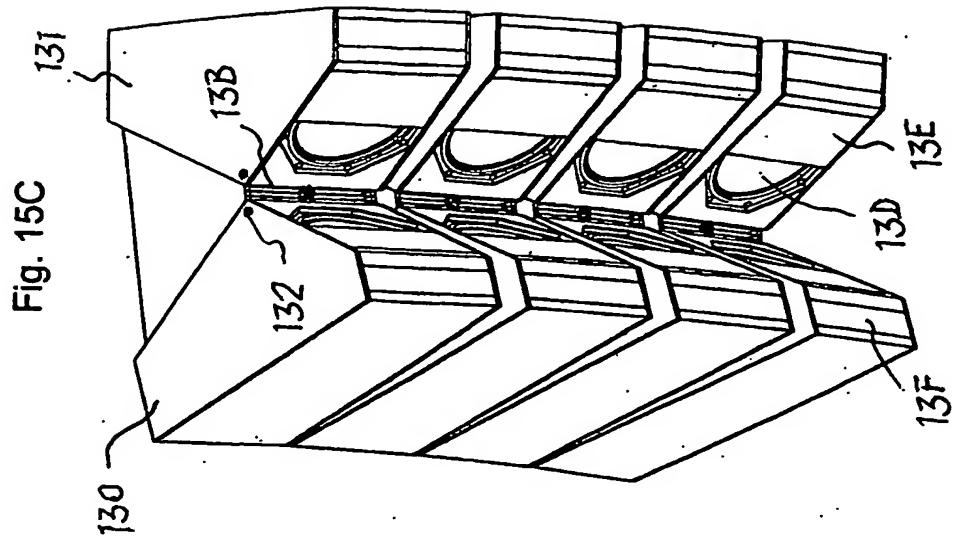


Fig. 11D





INTERNATIONAL SEARCH REPORT

International Application No
PCT/IT 03/00123A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04R1/32 G10K11/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04R G10K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 847 331 A (HART TERESA ET AL) 8 December 1998 (1998-12-08) column 1, line 1 - line 15 column 2, line 10 - line 37 abstract --- US 4 357 490 A (DICKEY BARON C) 2 November 1982 (1982-11-02) column 3, line 31 -column 4, line 24 abstract -----	1-22
A		1-22

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search

7 July 2003

Date of mailing of the international search report

25.07.2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3018

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INTERNATIONAL SEARCH REPORTInternational application No
PCT/IT 03/00123

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5847331	A 08-12-1998	NONE	
US 4357490	A 02-11-1982	NONE	